REMARKS

This Amendment is in response to the non-final office action mailed on August 11, 2006, following a remand by the Board of Patent Appeals and Interferences. A petition for three month extension of time, to and including February 12, 2007 (because February 11, 2007 fell on a Sunday), with an authorization to charge our deposit account for the requisite fee, is submitted herewith. In the event any additional fees are necessary, kindly charge the cost thereof to our Deposit Account No. 13-2855.

Status of Claims

Claims 9, 23-25, 31 and 34-37 are pending in the application. Claims 9, 23, 31 and 36 are presently amended to provide proper antecedent basis for various terms and phrases, and to define the scope of said claims still more clearly.

Rejections Under 35 U.S.C. § 112

Claims 9 and 34-35 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement, said claims are presently amended so as to overcome the Examiner's objections. It is now clear that there are a total of three reflecting surfaces which are used to invert the beam and direct it along an axis collinear with the incident beam. The Examiner's objections are now moot and should be withdrawn.

35 U.S.C. § 103 Rejections

Turning now to the suggestion in the office action that the teachings of Nishiwaki and Shei would be combined by one of ordinary skill to the art, it is again urged that the technical fields are sufficiently disparate that one of ordinary skill in the art would not consider disclosures regarding eye surgery pertinent to any problem encountered in ink-jet nozzle formation (reference is directed to the Temple Declaration, paragraphs 5 and 6 to this effect).

Moreover, Nishiwaki specifically discloses as its object the efficient use of beam energy in forming ink-jet nozzles (see column 1, lines 23-26 to this effect). It achieves this goal by splitting the beam into sub-beams through the use of a plurality of prisms (61a-6ma and 61b-6mb, displayed in Fig. 8) and focusing the all sub-beams on a single mask (8, displayed in Fig. 5). In this way, spatial inhomogeneities in the original beam will be reduced as several samples of beam intensity – the sub-beams – are combined and 'the light transmissible portion 8a can be irradiated at the same illumination intensity' (column 5, lines 21-23). The flyeye lens is specifically disclosed as 'an optical integrator', one of ordinary skill in the art would thus see the flyeye lens as a means to provide uniform illumination of the mask.

Shei et al. utilizes three rotating reflective surfaces as a beam homogenizer. One of ordinary skill in the art, in the unlikely event that he encountered this disclosure, would see the beam homogenizer as a functional equivalent to the optical integrator disclosed in Nishiwaki. There is no motivation within the prior art to choose to use such a beam homogenizer in addition to the optical integrator taught in Nishiwaki. Accordingly, the combination of homogenizing means recited in Claims 9 and 23-24 would not be obvious to one of ordinary skill in the art. Withdrawal of the rejection is therefore respectfully solicited.

Further, regarding Claims 9, 23-24 and 31, the proposed combination of Nishiwaki and Shei with GB 2 262 253 is based upon an incorrect statement of the advantages of a reverse tapered nozzle. As the office action notes, references from different fields may only be applied in combination where they are reasonably pertinent to the particular problem faced by the applicant. Turner *et al.* (GB 2 262 253) is specifically directed to forming tapered nozzles in wing skin material on aircraft (Page 1, paragraph 2). The reverse tapered nozzles advantageously improve laminar flow of air past the outer surface of the wing by applying suction to the interior. Clearly, the fluid dynamical situation within an ink-jet is far different

at least by virtue of the fact that there is ink interior the nozzle and air outside the nozzle. Further, the statement that it would be advantageous to form both tapered and reverse tapered nozzles to allow for a more versatile process is specious; by such an argument any process step could be included despite not having a specific advantage.

Turning to section 7 of the reasoning in the office action, Claims 9 and 31 as amended specifically recite the use of three reflecting surfaces to produce an inverted beam collinear to the incident beam. GB 2 262 253 clearly and consistently discloses the use of four reflecting surfaces (see Fig. 4, 12, 13 and 15, 16). In addition, there is no disclosure of inversion of the beam, nor is the reflected beam collinear to the incident beam. Attention is directed to Figure 4, where it can clearly be seen that the rightmost incident ray is also the rightmost reflected ray and the leftmost incident ray is also the leftmost reflected ray. As such, the operation performed on the beam in no way constitutes an inversion. Moreover, the office action concedes that four reflecting surfaces are not capable of performing beam inversion (see section 3 of the action). Looking again to Figure 4 it is clear that the reflected beam is manifestly not collinear as the rightmost incident ray is not collinear with the rightmost reflected ray, the rightmost reflected ray being collinear with the axis of rotation. Withdrawal of the rejection is therefore respectfully solicited.

Turning now to the rejection of Claim 35 at section 11 of the office action, attention is directed to Column 1, lines 54-56 of the Hizny reference, where it is disclosed that the spatial filter should be "coupled closely, such as by gluing, to a laser". Clearly, if the further mask recited in Claim 35 is so-coupled to the laser it would not be physically possible for it also to be 'interposed between the mask and the beam converging means' as required by the claim. Therefore, the teaching of Hizny is not relevant and withdrawal of the rejection is solicited.

Applicants' Admitted Prior Art (APA), in combination with Nishiwaki et al. in view of Shei would not result in the Applicants' claims. According to APA, a reverse tapered hole

may be formed by controlling the divergence of a single beam, which in turn determines the angle of taper of the nozzle. However, there is no suggestion of taking that teaching, and combining it with the claimed converging means.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that all pending claims of the application, as amended, are now in condition for allowance. The Examiner's reconsideration and favorable action are respectfully solicited.

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Respectfully submitted,

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